

BEST AVAILABLE COPIE

What is claimed is:

1. An optical device comprising:
a plurality of separate optical paths, each of which receiving a separate group of optical signals;
a plurality of variable optical attenuators, each of which having an input coupled to an associated one of said separate optical paths;
~~an optical combiner having separate inputs, each of which coupled to an output of~~
an associated one of said variable optical attenuators, said optical combiner having an output providing said separate groups of optical signals in an aggregated form on an aggregate optical signal path; and
an optical performance monitor circuit coupled to said aggregate optical signal path, said optical performance monitor circuit being configured to detect an optical signal power of at least one of said separate groups and to supply a feedback signal to corresponding ones of said variable optical attenuators for adjusting a respective attenuation associated with each of said attenuators in response to said detected optical signal powers.

2. An optical device according to claim 1, wherein said device further comprises a plurality of first optical combiners, each of which being coupled to an associated one of said optical paths for supplying a respective one of said separate groups of optical signals.

BEST AVAILABLE COPIE

3. An optical device according to claim 1, wherein said device further comprises an optical demultiplexer, said optical demultiplexer having a plurality of outputs, each of which being coupled to an associated one of said optical paths for supplying a respective one of said separate groups of optical signals.
4. An optical device according to claim 1, wherein said device further comprises an optical amplifier coupled to an output of said optical combiner.
5. An optical device according to claim 1, wherein said device further comprises a filter coupled to said aggregate optical signal path, said filter having an output coupled to an input of said optical performance monitor.
6. An optical device according to claim 1, wherein said combiner comprises a plurality of cascaded optical filters, each of said optical filters having an input coupled to an output of an associated one of said variable optical attenuators.
7. An optical device according to claim 1, wherein said optical performance monitor circuit comprises an optical spectrum analyzer for detecting said optical signal powers and a processor circuit for supplying said feedback signals.
8. An optical device comprising:

an optical communication path receiving an optical signal including a plurality of separate wavelengths;

BEST AVAILABLE

an optical performance monitor circuit coupled to said optical communication path, said optical performance monitor circuit being configured to detect an optical signal power associated with each of a plurality of separate groups of said separate wavelengths and to supply separate feedback signals in response to said detected optical signal powers;

— an optical-demultiplexer configured to receive an output of said optical performance monitor circuit, said demultiplexer supplying each of said plurality of groups of said separate wavelengths on a separate associated output; and
a plurality of variable optical attenuators, each of which receiving a separate one of said separate associated outputs, each of said plurality of optical attenuators receiving an associated one of said separate feedback signals for adjusting an associated attenuation level.

9. An optical device according to claim 8, wherein said device further comprises an optical amplifier coupled to said optical communication path.

10. An optical device according to claim 8, wherein said device further comprises a filter coupled to said optical communication path, said filter having an output coupled to an input of said optical performance monitor.

BEST AVAIL

11. An optical device according to claim 8, wherein said optical performance monitor circuit comprises an optical spectrum analyzer for detecting said optical signal powers and a processor circuit for supplying said feedback signals.

12. A method for transmitting optical signals, comprising the steps of:
providing each of a plurality groups of said optical signals on a respective one of
a plurality of separate optical signal paths;

combining each of said groups of optical signals on an aggregate optical signal
path;
detecting a plurality of power levels, each of said plurality of power levels being
associated with a corresponding one of said plurality of groups of optical signals; and
attenuating each group of said plurality of optical signals on said separate optical
signal paths in response to a corresponding one of said detected plurality of power levels.

13. A method for transmitting optical signals, comprising the steps of:
providing each of a plurality of groups of said optical signals in an aggregated
form on an optical signal path;

detecting a plurality of power levels, each of said plurality of power levels being
associated with a corresponding one of said plurality of groups of optical signals;
separating said groups of optical signals onto associated separate optical signal
paths; and
attenuating each group of said plurality of optical signals on said separate optical
signal paths in response to a corresponding one of said detected plurality of power levels.